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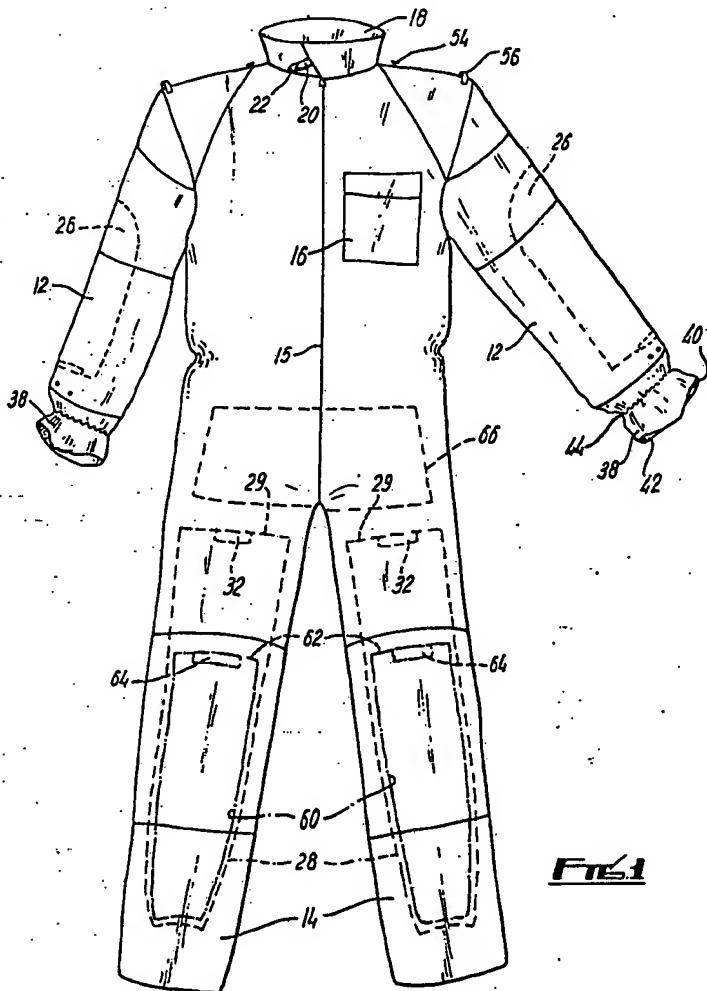
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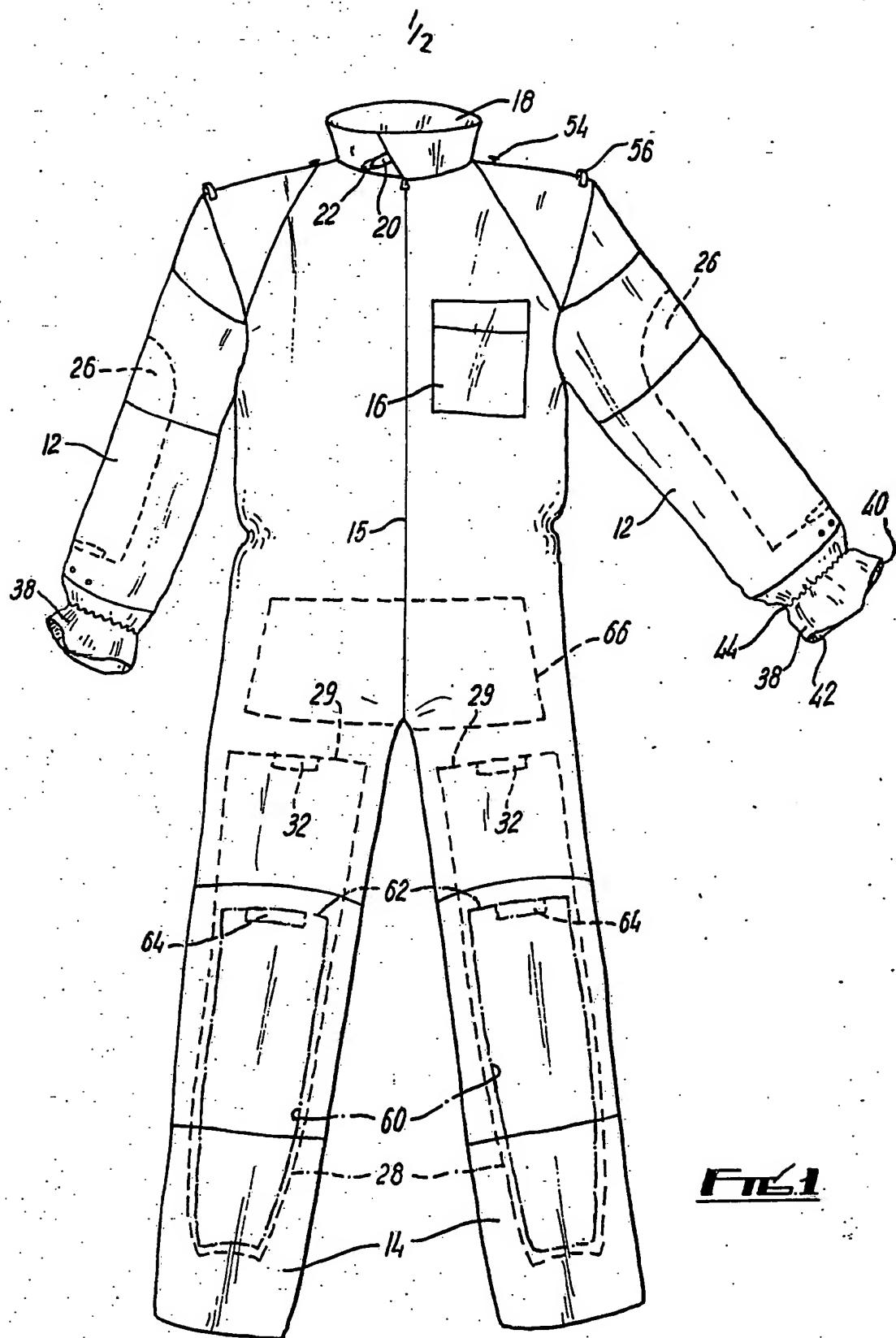
#### (54) Protective clothing

(57) A protective garment, intended mainly for use in riot situations, comprises a one piece suit of a fire resistant material having integral protection in the form of guards and/or padding and/or quilting incorporated in pockets in the legs, arms and shoulders. The garment has tight-fitting cuffs at the wrists and ankles to prevent the ingress of flammable liquids.



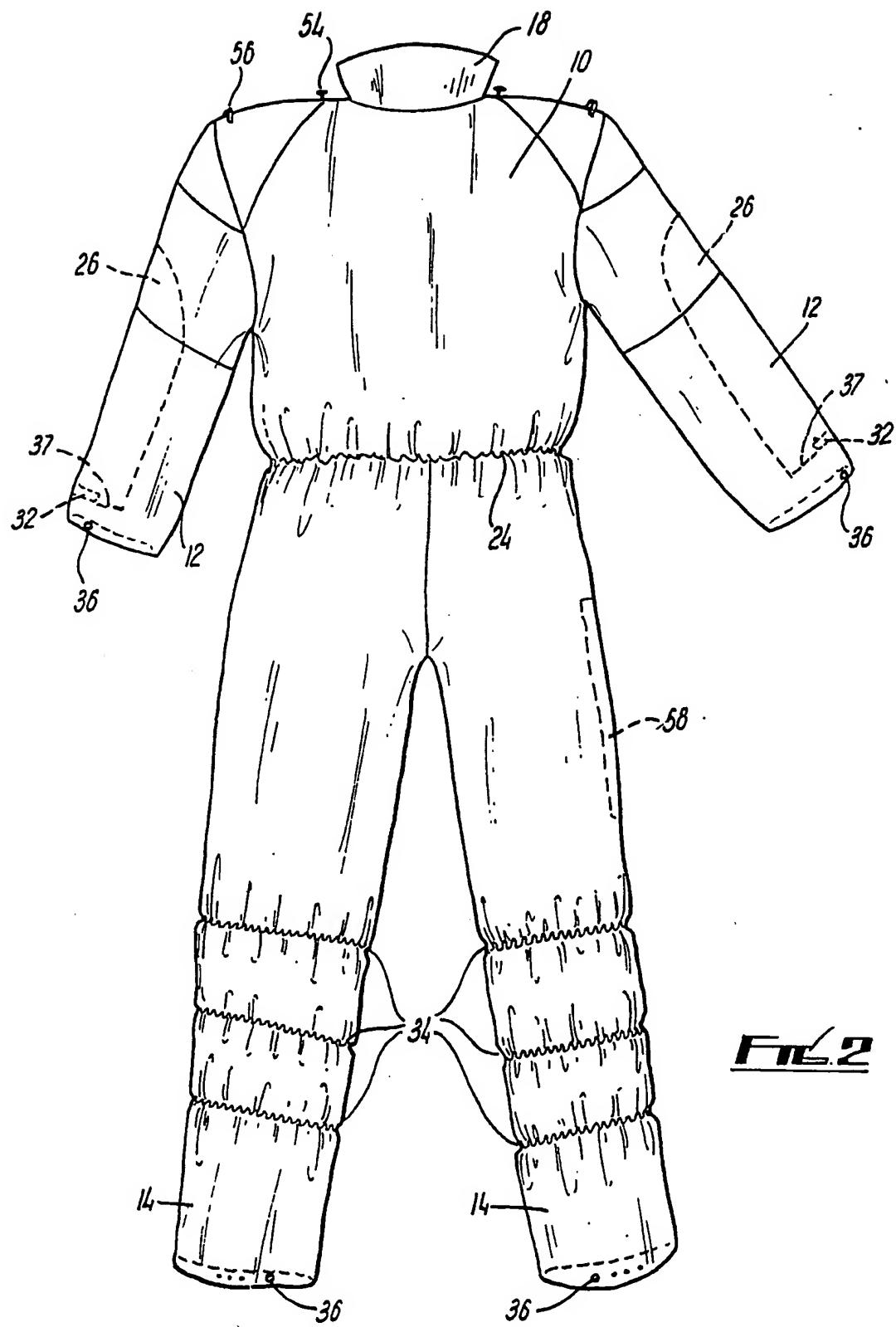
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Improvements in or relating to  
protective clothing

The present invention concerns improvements in or relating to protective clothing, especially clothing intended to protect the wearer against those types of injury he could expect to encounter during a riot or other civil disturbance.

It is well known that in certain situations Police, Army, Prison Officers and other authorities are assaulted not only by punches and other blows, but by weapons, missiles, projectiles, petrol and other incendiary devices.

Currently such authorities attempt to protect themselves against injury in these conditions by wearing a one piece coverall suit which may or may not be fire resistant etc. To protect themselves against blows they often wear body padding or body armour in the form of shin pads, back protectors etc. This padding is applied separately from the suit and is often difficult to apply and maintain in effective position. It is uncomfortable to wear and restricts the wearer's movement.

It is an object of the present invention to obviate or mitigate these and other disadvantages.

According to the present invention there is

provided a protective garment comprising a trunk portion with legs and arms projecting therefrom, the trunk portion having a closable opening to allow fitment of the garment, at least each leg portion of the garment incorporating integral pocket means extending over at least part of its length to incorporate protective guards and elasticated means adapted to hold the guards in position against the wearer's legs.

Preferably the pockets are internal pockets. The protective guard incorporated in the internal pocket may be padding. A further pocket may be provided in the internal pocket to accommodate a fibre reinforced shin guard. Preferably the padding extends over at least the lower leg, knee and thigh portions of the leg.

Preferably also padding is included over at least part of the length of the arms.

Preferably the shoulder portions and optionally the upper arms have quilted or other permanent impact absorbing means formed therewith.

Preferably the padding in the arms and legs comprises closed cell fire resistant, synthetic

material foam slabs. It is desirable that the slabs are kept in pockets sewn to the inner surfaces of the garment, the pockets having openable tops to permit insertion and removal of the foam slabs, for example when cleaning the garment, the open tops being closable by any suitable means, for example by hook and fleece strips (VELCRO, Registered Trade Mark).

Preferably the elasticated means on each leg comprises three rows of resilient material combined with the fabric of the leg on the regions of the leg behind the protective guards, the tension in the elastic material being such that the said regions of the leg portions and the guards are held firmly in position against the wearer's leg.

Preferably press studs are provided on the ankles and on the wrists of the garment. Preferably a mitt having a hole for the fingers and a hole for the thumb is provided at the end of each arm and is co-operable with the fabric of the wrist opening to prevent flammable or other fluid penetrating into the garment through the wrist opening. The mitt may be permanently fixed to the arm or may be removably attached thereto by press studs or other suitable fastenings.

Preferably at least the front portion of the legs is lined with a ballistic nylon material.

Preferably at least part of each arm is lined with a ballistic nylon material.

Preferably the trunk portion of the garment has a longitudinally extending opening provided with a sliding clasp fastener.

Preferably the garment has a prussian type collar incorporating a tab and hook and fleece fastening means.

One embodiment of the present invention will now be described by way of example only with reference to the accompanying diagrams in which;

Fig. 1 is a front view of a protective garment; and,

Fig. 2 a rear view of the garment.

A protective garment takes the form of an overall manufactured from barathea, Ponatex 210 or any other suitable material and has a trunk portion 10. Two arms 12 and two legs 14 project from the trunk portion 10. A central opening 15 closeable by a sliding clasp fastener is provided in the front of the trunk portion which is provided also with a breast pocket 16, a prussian style collar 18 with a tab 20 having hook and

fleece fastening strips 22 and an elasticated gathering 24 across the back at the waist area.

Internal pockets 26, 28 extending over substantially the entire length of the arms 12 and legs 14 are provided on the front of the arms and legs by fire resistant drill material attached by stitching to the fabric of the arms and legs. The leg pockets 28 are open at their upper ends 29 whereas the arm pockets 26 are open at their lower ends 37. The pockets are each provided at their open ends with hook and fleece fastening strips 32.

Shaped slabs of closed cell, fire resistant synthetic foam of approximately 16 mm thickness are fitted into each of the pockets 26, 28.

To maintain the leg pads in position at all times during wear, means are provided on the garments legs to hold the front pockets and consequently the pads therein firmly in position against the front of the wearer's legs. These means comprise three gathered elasticated rows 34 extending across the back of the leg. The length of the gathered rows decreases from top to bottom.

Press studs 36 are provided at the wrists and ankles of the garment so that the wrist and ankles can be gathered around the wearer's limbs when in use and a mitt 38 having a thumb hole 40 and a finger hole 42 and an elasticated gathered row 44 are provided at the end of each arm to ensure that no foreign body or fluid can penetrate into the garment at the wrists. The mitts may be permanently stitched to the end of the arms or may be removably attached thereto by means of press studs, hook and fleece fastening strips or any other suitable means.

The shoulder areas are padded with quilting and provided with buttons 54 and loops 56 for accommodating epaulettes.

A pocket 58 for a truncheon is provided in the thigh region of the right leg 14.

To provide added protection the fronts of the legs are lined with a ballistic nylon fabric along their whole length. The properties of this fabric are such that penetration by a weapon or missile is prevented or hindered. A ballistic nylon fabric lining is provided also in each arm.

It will be realised that the garment described with reference to the diagrams is provided with

protective padding which forms an integral part of the garment over those areas of the body that are most likely to be attacked, that is the front of the legs, the forearms and the shoulders. In addition the garment gives protection against attack by fire, acid, petrol etc. As the protection against blows is flexible and the design of the garment is such that this protection is held firmly against the wearer's limbs the wearer can use the garment in relative comfort with the expectation of that the padding remaining in its most effective position irrespective of the wearer's movements. The garment is lightweight and does not appreciably hinder the wearer's mobility.

Various modifications can be made without departing from the scope of the invention, for example, the opening in the trunk portion of the garment can take any convenient form, the quilted areas can be extended to other areas of the garment the back and front of the trunk and/or the legs and arms can incorporate bullet-proof panels and the ankle openings could be elasticated. As an addition or alternative to the leg padding assembly 28, 29, 32, an internal pocket 60, shown in the drawings in chain lines may be stitched to the inside of the leg within the pocket 28, extending from the instep to the knee. This pocket is intended to accommodate a fibre reinforced synthetic resinous material shin guard and for training purposes

may be omitted from the pocket 28. The pockets may be closeable at their upper open ends 62 by fleece and hook fastening strips 64. A panel or panels 66 of a fire resistant cotton drill material may also be provided in the groin area of the garment.

1. A protective garment comprising a trunk portion with legs and arms projecting therefrom, the trunk portion having a closable opening to allow fitment of the garment, at least each leg portion of the garment incorporating integral pocket means extending over at least part of its length to incorporate protective guards and elasticated means adapted to hold the guards in position against the wearer's legs.
2. A garment as claimed in Claim 1, in which the pockets are internal pockets.
3. A garment as claimed in Claim 1 or Claim 2, in which the protective guard is padding extending over at least the lower leg, knee and thigh portions of the leg.
4. A garment as claimed in any of Claims 1 to 3, in which the protective guard is a knee to instep fibre reinforced shin guard.
5. A garment as claimed in any one of the preceding Claims, in which padding is included over at least part of the length of the arms.
6. A garment as claimed in any one of the preceding Claims, in which the shoulder portions have quilted or

other permanent impact absorbing means formed therewith.

7. A garment as claimed in any one of Claims 2 to 6, in which the padding in the arms and legs comprises closed cell fire resistant, synthetic material foam slabs.

8. A garment as claimed in any one of the preceding Claims, in which the pockets have openable tops to permit insertion and removal of the protective guards, the open tops being closable by any suitable means.

9. A garment as claimed in any one of the preceding Claims, in which the elasticated means on each leg comprises three rows of resilient material combined with the fabric of the leg on the regions of the leg behind the protective guards, the tension in the elastic material being such that the said regions of the leg portions and the guards are held firmly in position against the wearer's leg.

10. A garment as claimed in any one of the preceding Claims, in which press studs are provided on the ankles and on the wrists of the garment.

11. A garment as claimed in any one of the preceding Claims, in which a mitt having a hole for the fingers and a hole for the thumb is provided at the end of each arm

and is co-operable with the fabric of the wrist opening to prevent flammable or other fluid penetrating into the garment through the wrist opening.

12. A garment as claimed in Claim 11, in which the mitt is removably attached to the arm by press studs or other suitable fastenings.

13. A garment as claimed in any one of the preceding Claims, in which at least the front portion of the legs is lined with a ballistic nylon material.

14. A garment as claimed in any one of the preceding Claims, in which at least part of each arm is lined with a ballistic nylon material.

15. A garment as claimed in any one of the preceding Claims, in which the trunk portion has a longitudinally extending opening provided with a sliding clasp fastener.

16. A garment as claimed in any one of the preceding Claims, having a prussian type collar incorporating a tab and hook and fleece fastening means.

17. A protective garment substantially as hereinbefore described with reference to the accompanying drawings.

18. Any novel subject matter or combination including novel subject matter disclosed in the foregoing specification or claims and/or shown in the drawings, whether or not within the scope of or relating to the same invention as any of the preceding claims.